Minerals Yearbook

1978-79

Volume I

METALS AND MINERALS

Prepared by staff of the

BUREAU OF MINES

As a result of a program of planned increases begun in 1978, about 1.8 million tons of ore were milled in 1979, the highest tonnage since the mine began production. Ore reserves were given as 44 million tons grading 6.5% lead and 1.6% zinc.

In New York, at St. Joe Zinc's Balmat and Edwards mines, production in both years declined sharply as a result of a strike which began on June 1, 1978, and ended in July 1979. St. Joe had made arrangements to assure a supply of raw material to its smelter at Monaca, Pa., through 1979, as production at the mine was scheduled for half its normal rate following settlement of the differences between labor and management. The company estimated that known ore deposits at the Edwards mine will be depleted within 3 years of normal production.

In Colorado, zinc production was from eight mines in 1978 and seven mines in 1979. Idarado Mining Co., owned 80.1% by Newmont Mining Corp., placed the Idarado mine on care and maintenance status in July 1978 as a result of low zinc prices and high smelting and refining charges. In August 1978 the Camp Bird mine was closed indefinitely due to high costs and mining problems. Resurrection Mining Co., wholly owned by Newmont Mining Corp. and managed by ASARCO, mined 8% less ore in 1979 than in 1978 at the Leadville mine. Ore reserves were 1.5 million tons grading 10.1% zinc and 5% lead at yearend 1979. Homestake Mining Co. produced some byproduct zinc from its Bulldog silver mine near Creede. In June 1978 the Sunnyside gold mine of Standard Metals Corp., which produces byproduct zinc, was flooded out when the bed of an overlying lake collapsed into the present workings and those of an old stope. The mine was reopened in 1979.

Production of zinc in Idaho was reported from about 20 mines in 1978-79, but about half of them produced less than 1 ton each as a byproduct from other metal mining operations. At The Bunker Hill mine of The Bunker Hill Co., a wholly owned subsidiary of Gulf Resources & Chemical Corp., production in 1978 increased over that of 1977. Production from the Star-Morning Unit Area, owned 30% by Hecla Mining Co., decreased slightly in 1979 to 257,700 tons grading 6.4% zinc, 4.9% lead, and 96 grams of silver per ton. Ore reserves at the mine were increased to 1.4 million tons through the development of new ore and increased metal prices which lowered the cutoff grade for mining. Hecla's wholly owned Lucky Friday mine produced 159,600 tons of ore in 1979 compared with 143,900 tons mined during 1978. Ore grade was 1.5% zinc and 11.5% lead, with 562 grams of silver per ton. Calculated ore reserves at the end of 1979 were 530,000 tons. Operating costs increased about 23% in 1978 compared with about a 13% increase during 1977. Development continued on the west end of the Lucky Friday vein in 1979, and the sinking of a new shaft was expected to increase production by 35%. Intermountain Mining Engineers, with equal participation by U.S. Antimony Corp., produced zinc together with lead, silver, and gold from its recently rehabilitated Nabob mine located in the Pine Creek area of the Coeur d'Alene mining district.

In Utah, Park City Ventures, a joint venture owned 60% by The Anaconda Company and 40% by ASARCO, closed the Ontario mine in February 1978 when it became unprofitable. In 1979, Noranda Exploration Inc., a subsidiary of Noranda Mines Ltd., acquired the assets of Park City Ventures. In mid-1978, the Kennecott Copper Corp. ceased mining operations at the Burgin mine.

In Virginia, Piedmont Mineral Associates, a joint venture of Callahan Mining Corp. (49%) and New Jersey Zinc (51%), conducted cost studies on one zinc property to determine the feasibility of producing zinc chemicals, sulfuric acid, and other sulfur or metal products.

No mines produced zinc in Washington in 1979, compared with one mine in 1978, two in 1977, and four in 1976. Bunker Hill's Pend Oreille mine remained on a care and maintenance basis pending improvement in the zinc market.

In northern Maine, Superior Oil Co. and Louisiana Land and Exploration Co. continued exploration and drilling on their large zinc-copper discovery at Bald Mountain. Sulfide mineralization in two major ore types consisted of 9.1 million tons of zinc ore assaying 2.5% zinc, and 3.6 million tons of copper-zinc ore assaying 1.1% copper and 1.8% zinc. Both ore types contain some values in gold and silver. Pilot plant studies were planned for 1979-80. The Bald Mountain deposit is on land leased from the Great Northern Nekoosa Paper Co.

In Wisconsin, the Exxon Minerals Co., U.S.A., a division of Exxon Corp., continued evaluation and feasibility studies on its large zinc-copper discovery near Crandon in northern Wisconsin. Permits were sought in 1979 for underground development work. Because of depressed zinc prices, Eagle-Picher Industries, Inc., closed the Bear Hole

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AREA REPORTS: DOMESTIC

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Mine in the Pinto mining district about 13 miles west of Cedar City; United States Steel Corp. direct-shipped ore from the Mountain Lion mine; and Utah International, Inc., mined and concentrated a lower grade ore at the Thompson and Iron Springs mines. Iron ore in the county was shipped to the CF&I Steel Corp. steel plant in Pueblo, Colo., and to the United States Steel Geneva Works, near Provo, Utah. The Geneva Works also obtained iron ore from Atlantic City, Fremont County, Wyo. Various raw materials for the operation of this plant were obtained from mines in Colorado, Nevada, Utah, and Wyoming. Crude ore shipped in 1978 increased 2% in amount and 7% in value in 1978, then in 1979, decreased 18% in amount and 9% in value.

Utah's second largest employer, the Geneva Works, is one of the largest steelmaking facilities in the West, with an annual capacity of about 2.5 million ingot tons. The principal products from this fully integrated steel plant are plates, hot-rolled sheets and coils, structural shapes, welded steel pipe, pig iron, metallurgical coke, blast furnace and open hearth slag products, and coal chemicals and nitrogen products for fertilizer and industrial use.

In 1978, a new $9 million bag house air-cleaning facility began operation at the Geneva Works. The equipment is designed to allow burning of low-sulfur coal in the powerhouse boilers year-round as a supplemental fuel to blast furnace gas and to reduce particulate emissions from the powerhouse. In 1979, United States Steel and EPA negotiated over the air pollution controls necessary to limit emissions at the Geneva plant.

Early in 1979, Nucor Corp., of Charlotte, N.C., announced plans to construct a mini-steel mill on a 600-acre site at Riverside in Box Elder County. Scheduled for construction in 1980-81, the mill was expected to cost $45 million and produce about 350,000 tons per year of alloy and carbon steel angles, flats, channels, and rounds. Operation of the plant will require about 250 people.

Lead.—Utah was ranked fourth in domestic production of lead in 1978, but with the closing of Kennecott's Burgin Mine in the East Tintic mining district, Utah County, and the Ontario mine of Park City Ventures in Park City mining district, Summit County, lead production plummeted to 12th place in 1979.

The lead-zinc mining and milling operations at the Park City Ventures Ontario Mine, were closed February 15, 1978. The closure affected about 350 mine and mill workers. A company spokesman said that high costs caused by water and rock problems forced the shutdown. Park City Ventures, a 60-40 joint venture of the Anaconda Co. and ASARCO, Inc., had been operating the mine under lease from United Park City Mines Co. since 1971.

On May 22, 1979, Noranda Mines Exploration, Inc., a subsidiary of Noranda Mines, Ltd., reportedly paid Park City Ventures $300,000 for an option to lease the United Park City Mines Co. property. Noranda Mines Exploration reportedly paid an additional $200,000 and exercised its option to purchase the lease on August 22, 1979; thereafter Noranda will pay Ventures $3 million in $1 million annual installments. Advance royalties paid by Ventures to United Park will be continued by Noranda, plus a share of any net profits. Throughout the rest of the year, Noranda continued to rehabilitate the mine and mill and explore the property.

Utah's last remaining lead-zinc mining operation, Kennecott's Tintic Div. Burgin Mine near Eureka, was closed in July 1978. Kennecott leased the Burgin property from Chief Consolidated Mining Co. and from the Tintic group - composed of South Standard Mining Co. and Amax-Arizona, Inc. The Burgin Mine has yielded substantial production since Kennecott began operations in 1963; however, a diversity of problems—including large volumes of hot, brackish water, internal heat, and unstable ground conditions—made mining unprofitable, particularly with current depressed zinc prices. Kennecott's operations continued at the Trixie Mine, a profitable gold and silver producer in the same general area. The company retained possession of its 750-ton-per-day mill and has made it available for treating ores from lessee operations in the district.

The two base-metal operations, the Ontario and the Burgin mines, also recovered substantial amounts of gold, silver, and zinc. Closing of the two mines was reflected in the decrease in lead production in the State.

Magnesium.—NL Industries, Inc., Magnesium Div., recovers magnesium metal and byproduct chlorine at its Rowley plant, on the southwest shore of the Great Salt Lake in Tooele County. The products are extracted from brine waters of the Great Salt Lake in a complex process that includes solar evaporation, chemical treatment, melting, purification, and electrolysis

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Geneva Works during the
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Earlier in the year the
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port for keeping the steel plant open; United States Steel had protested foreign steel imports and stated that compliance with strict pollution requirements might force closure of the Geneva Works.

In July 1980, Nucor Corp., a North Carolina corporation, began constructing a building to house a new steel products plant. Located in Box Elder County 1 mile northwest of Plymouth and 9 miles south of the Utah-Idaho state line, the new ministeel mill will use recycled steel, including automobile bodies. The $90 million plant was scheduled to produce 400,000 tons per year of steel products, including grinding balls, merchant bars, reinforcing bars, and structural steel. Although the products were priced higher per ton than those of the company's eastern mills, the differential in steel prices was expected to be made up in lower freight charges.

Lead.—On August 28, 1980, Noranda Mining Co. commenced shipping a lead-zinc-silver ore from the Ontario Mine in the Park City mining district, Summit County, to the smelter at Bunker Hill, Idaho. Ores had been stockpiled over the year. No other lead production in the State was reported. The low average unit of lead, $0.4246 per pound, was not conducive to recovering the metal. During the year, the price of lead reached a high of $0.5348 on January 4 and a low of $0.34 on July 4.

Magnesium.—NL Industries, Inc., Magnesium Div., recovered magnesium metal and byproduct chloride at its Rawley plant on the southwest shore of the Great Salt Lake, Tooele County. On November 1, 1980, the NL Magnesium Div. was sold to the Magnesium Div. of Amax Specialty Metals Corp., a subsidiary of AMAX Inc., for approximately $58 million. The plant was operated at the maximum production rate of 28,000 tons per year. An expansion program was underway to increase production capacity to 45,000 tons per year by 1983. About 750 workers are employed at the Rawley installation.

According to the AMAX 1980 annual report, the facility has one of the largest active solar pond systems in the world. Covering over 40,000 acres, energy collected by the system provides more than 95% of the energy used in magnesium recovery. The acquisition made AMAX the second largest magnesium producer in the United States; Dow Chemical Co., with an annual production capacity of 110,000 to 120,000 tons, is the first. NL Industries sold about 20,000 tons of chlorine per year and used 36,000 tons in its own process. The Rawley magnesium process, including solar evaporation, feed preparation, and production and handling of the metal, were described in a Utah Geological and Mineral Survey publication.[3]

Molybdenum.—Utah Copper Div. continued to ship molybdenum concentrates recovered as a byproduct of its copper production. As a result of the copper strike, output of molybdenum concentrate decreased nearly 21% in amount and about 33% in value. After Colorado and Arizona, Utah was ranked third in molybdenum production.

Pine Grove Associates, a joint venture of Getty Oil Co. and Phelps Dodge Corp., continued exploring in the Pine Grove mining district, southwest of Milford, Beaver County. Surface drilling in the porphyry-type molybdenum deposit was completed in 1980. Getty, operator of the project, was drilling pilot holes for two shafts that would permit underground work to further delineate the size of the mineralized body. By yearend, about $14.5 million had been expended on the property. During the year, engineering hydrologic studies, preliminary engineering investigations, and financial evaluations were being coordinated to determine the economic feasibility of the project. The companies control 36,500 acres in the vicinity of the deposit, and under the terms of the agreement, Getty was to spend $45 million (adjusted for inflation) on the project within 10 years ending in 1988. In 1977, drilling indicated molybdenum and tungsten mineralization between 4,000 and 6,000 feet deep. Getty has the right to acquire 52% interest on the property by spending $45 million on exploration and development work.

Selenium.—Utah Copper Div. continued producing selenium recovered as a byproduct from refining copper ores. Selenium production in 1980 was less than that of the previous year because of reduced throughput as a result of the copper strike.

Silver.—The principal producer of silver in the State continued to be the Bingham Canyon Mine of the Utah Copper Div. The metal is recovered as a byproduct during the electrolytic refining of smelter anode copper. According to Engineering Mining Journal, March 1981, the Bingham Canyon Mine was the third largest silver producer in 1979 and the fourth largest in 1980. Other producers of silver include Kennecott's Trixie Mine in Utah County, Sharon Steel's Midvale mill tailings in Salt Lake